ARIZONA BALD EAGLE WINTER COUNT: 2001

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INTRODUCTION

The national bald eagle (*Haliaeetus leucocephalus*) winter count was initiated and organized by the National Wildlife Federation (NWF) from 1979-1991. Arizona contributed statewide information in the 1970s to the early 1980s (Todd 1977, 1981, 1984a, 1984b; Hall 1985). However in 1986, a NWF protocol change asked the states to survey only areas of high bald eagle concentrations (routes with more than 15 bald eagles observed in two or more years). Due to Arizona's lack of "concentrations," we contributed minimal information in 1986 and 1987 (Hastings 1988), and surveyed only specific management areas such as Roosevelt Lake (U.S. Fish and Wildlife Service 1990) and Nankoweap Creek (Brown et. al 1989; Brown and Stevens 1992) from 1989 to 1991. The national winter count is now coordinated by the U.S. Geological Survey Biological Resources Division, Snake River Field Station (USGS-BRD-SRFS)

Arizona's statewide annual winter counts resumed in 1992 (Beatty 1993; Beatty and Driscoll 1994, 1996, 1998; Beatty et al. 1995a, 1995b, Driscoll et al. 2000), using a combination of ground visits (foot, automobile, boat, snowmobile) and helicopters. By 1995 the Arizona Game and Fish Department, in coordination with the NWF, established 115 standardized routes for Arizona's bald eagle winter count.

Because the bald eagle is gregarious in winter, national surveys are a valuable tool to determine the species' success throughout its range (Stalmaster 1987). In addition, determining the wintering bald eagle's habitat use in Arizona, increases our knowledge of management needs for wintering areas. Identifying winter distribution in Arizona was a goal in the 1982 Southwest Bald Eagle Recovery Plan (U.S. Fish and Wildlife Service 1982). Although the U.S. Fish and Wildlife Service (USFWS) has reclassified the bald eagle to threatened status (USFWS 1995), and has proposed to delist the species (USFWS 1999), the national winter count is still important. Through the consistent efforts of each state, the winter count will provide valuable information on nationwide population fluctuations post-delisting.

METHODS

In 2001, we continued to use the established 115 standardized survey routes in Arizona. Our objective was to complete all of the standardized routes. Any additional routes completed are included for management purposes only, and are not included in the results.

We scheduled Arizona bald eagle winter count for January 8 to 14, 2001. This allowed for the weekday use of agency helicopters and weekends for volunteers. Due to the diverse habitat in Arizona, and our desire to maximize (but not duplicate) statewide coverage in a narrow period

with minimal effort; we needed a variety of methods to perform an adequate survey. The best way to survey the rugged terrain and deep canyons of the Salt, Verde, and Gila river watersheds, is by helicopter. U.S. Bureau of Reclamation (USBR) and Salt River Project (SRP) contributed four days of helicopter time, while volunteers surveyed the other areas more accessible by boat, vehicle, and foot.

The low-level helicopter flights contained two to three biologists and a pilot flying directly above the watershed. While the level of flight and speed were dependent upon terrain, height and density of power lines, and wind speed; a height of 100 to 200 feet above ground level and 55 to 65 knots was optimum for observing bald eagles.

We solicited volunteers from agencies and private groups through the mail, supplied survey forms (from the USGS-BRD-SRFS), and instructed them on the protocol. Most volunteers surveyed from their vehicle, although they also used boats, foot travel, snowmobiles, and planes.

We classified the bald eagle sightings into adult, subadult, and unknown age classes. We advised the volunteers to be aware of the various near-adult plumages as they may be easily mistaken for full-adult bald eagles. We also recorded the occurrence of golden eagles during the survey, but did not report them in this document.

We broke the data into two sections: 1. The volunteer survey by county (Tables 1-9), and 2. The helicopter survey (Tables 10). The separation between volunteer and helicopter surveys represents the difference in methods for future comparisons.

RESULTS

The 2001 Arizona bald eagle winter count totaled 216 (Tables 1-10, 12). We documented 141 adults (66 percent), 70 subadults (32 percent), and 5 unknown age bald eagles (2 percent). The highest number of bald eagles occurred on the Verde River (n=30). An additional nine bald eagles were counted on non-established routes (Table 11).

Of the 115 standardized routes, Arizona completed 108 (94 percent). Surveyors spent a total of 8,726 minutes (145.4 hours) searching. For one route, minutes were not recorded, and survey times were estimated from those reported in previous years. The greatest survey effort was in Coconino County, where volunteers searched for 3,097 minutes (51.6 hours) (Table 3).

The most efficient method of counting was by helicopter (Table 12). We counted 71 bald eagles in 1012 minutes (16.9 hours). This represented 0.701 bald eagles observed per minute. The most efficient volunteer ground effort (in counties with more than one survey route) occurred in Coconino County where they observed 0.220 bald eagles per minute.